AMENDMENTS TO THE CLAIMS

Claims 1-25 (Canceled)

26. (New) A mold for injection molding preforms, comprising:

a first mold portion and a second mold portion,

the first mold portion comprising a plurality of cavities, each cavity including a gate for injecting plastic melt and an upper region for molding a neck finish; and

the second mold portion comprising a plurality of mandrels, each mandrel having a base end;

wherein the first and second mold portions are moveable between a closed position, wherein each of the plurality of cavities of the first mold portion are mated with a corresponding mandrel of the plurality of mandrels of the second mold portion, and an open position;

wherein a plurality of void spaces is defined by the cavities and corresponding mandrels when the mold is in the closed position; and

wherein at least the area surrounding each gate and the base end of each mandrel comprises a material having a high heat conductivity to allow for rapid cooling of plastic melt when placed in the mold.

27. (New) The mold of Claim 26, wherein the mandrel has a coolant supply tube configured to deliver circulating coolant for cooling the mandrel.

28. (New) The mold of Claim 26, wherein the base of each mandrel and the area surrounding each corresponding gate form a portion of the void space corresponding to an end cap region of a preform.

29. (New) The mold of Claim 26, wherein the mandrel comprises an elongated body comprising a high heat transfer material, and the elongated body of the mandrel and a portion of the cavity define a portion of the void space defining a generally cylindrically shaped portion of a body of a preform.

30. (New) The mold of Claim 26, wherein a substantial portion of the mandrel comprises a high heat transfer material.

31. (New) The mold of Claim 26, wherein the high heat conductivity material comprises beryllium coated with a hard metal.

32. (New) The mold of Claim 26, wherein the high heat conductivity material comprises a high heat conductivity alloy.

33. (New) A mold for injection molding preforms, comprising:

a plurality of mandrels and a plurality of cavities;

each mandrel including a wall and a coolant supply tube disposed within the mandrel to supply coolant to the mandrel; and

each cavity including a lower region comprising a gate for injecting plastic melt and an upper region for molding a neck finish of a preform;

wherein at least the area surrounding each gate comprises a high heat conductivity material.

34. (New) The mold of Claim 33, wherein at least a portion of each mandrel comprises a high heat conductivity material.

35. (New) The mold of Claim 34, wherein the base end of the mandrel comprises high heat conductivity material.

36. (New) The mold of Claim 34, wherein a substantial portion of each mandrel comprises a high heat conductivity material.

37. (New) The mold of Claim 33, wherein a void space is defined between one of the mandrels and a corresponding cavity, and the cavity is sized and adapted so that the thickness of the void space adjacent to the lower region of the cavity is different from the thickness of the void space adjacent to the upper region of the cavity.

38. (New) The mold of Claim 33, wherein the mold is movable between a closed position and an open position.

39. (New) The mold of Claim 38, wherein the area surrounding each gate and the base end of each corresponding mandrel define a void corresponding to an end cap region of a preform when the mold is in the closed position.

40. (New) The mold of Claim 33, wherein the cavity comprises an insert comprising the gate for injecting plastic into the void space, the insert comprising high heat conductivity material.

41. (New) The mold of Claim 33, wherein the high heat conductivity material comprises beryllium coated with a hard metal.

42. (New) The mold of Claim 33, wherein the high heat conductivity material comprises a high heat conductivity alloy.

43. (New) A mold assembly, comprising:

a cavity section having an upper cavity surface and a lower cavity surface, the lower cavity surface comprising a first body of high heat transfer material;

an elongated core having a core mold surface comprising a second body of high heat transfer material; and

a void space formed by the cavity section and the elongated core when the mold assembly is in a closed position, the void space having an upper end and a lower end, the upper end of the void space being defined by the upper cavity surface and the core mold surface, and the lower end of the void space being defined by the lower cavity surface and the core mold surface.

44. (New) The mold of Claim 43, wherein the void space is configured to receive plastic to form a preform comprising a neck finish and a body portion, wherein the upper end of the void space forms the neck finish.

45. (New) The mold of Claim 44, wherein the lower end of the void space forms the body portion extending from the neck finish and terminating in an end cap.

46. (New) The mold of Claim 43, wherein the elongated core comprises a tube surrounded by an outer wall of the mandrel and configured to deliver coolant directly to a rounded end of the core.

47. (New) The mold of Claim 43, wherein the first body of high heat transfer material and the second body of high heat transfer material comprise beryllium coated with a hard metal.

48. (New) The mold of Claim 43, wherein the first body of high heat transfer material and the second body of high heat transfer material comprise a high heat conductivity alloy.

49. (New) The mold of Claim 43, wherein the cavity comprises an insert defining a gate for injecting plastic into the void space, the insert comprising high heat transfer material.

50. (New) An injection molding assembly having a plurality of void spaces for forming preforms having a neck finish and a body portion, the body portion extending from the neck finish and terminating in a base end, the improvement comprising:

a plurality of mandrels having a wall and a base end; and

a plurality of cavities each having a surface that that cooperates with corresponding walls a mandrel to define each of the plurality of void spaces,

wherein each cavity comprises a gate, wherein at least a portion of the cavity surrounding the gate comprises a high heat transfer material.

51. (New) An injection molding assembly comprising:

an elongated mandrel;

a cavity configured to receive at least a portion of the mandrel; and

a void space defined by the mandrel and the cavity and configured to receive material to form a preform;

wherein at least a portion of the mandrel and/or the cavity comprises a high heat transfer material.

52. (New) The injection mold assembly of Claim 51, wherein the mandrel and the cavity each comprise a high heat transfer material.

53. (New) The injection mold assembly of Claim 51, wherein only one of the mandrel and cavity comprises a high heat transfer material.

54. (New) The injection mold assembly of Claim 51, wherein the cavity includes a gate for injecting plastic melt into the void space, and said at least a portion of the mandrel and/or the cavity comprising a high heat transfer material is proximate to the gate.